EAST KENTUCKY POWER COOPERATIVE



June 28, 2013

Mr. Jeff Derouen
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602

**Re: Administrative Case No. 387**

Dear Mr. Derouen:

Thank you for your letter of May 31, 2013, inviting East Kentucky Power Cooperative, Inc. (EKPC) to discuss the role of price elasticity in its load forecasting efforts. EKPC considers price elasticity in all such forecasting and did so in its response to Administrative Case No. 387, filed March 31, 2013, which includes data from EKPC's *2012 Load Forecast*, which was approved by the EKPC Board of Directors in November 2012.

EKPC's load forecast model follows Itron's statistically-adjusted end-use model framework, in which the price elasticity of demand is assumed rather than estimated within the model. When creating its *2012 Load Forecast*, EKPC maintained the original, vendor-supplied default assumption of -0.2 for all customer classes for all owner-member cooperatives. This implies that a 1 percent increase in the price of electricity for a given customer class of a given owner-member cooperative results in a 0.2 percent decrease in electric usage by those customers. Thus, EKPC's latest load forecast includes the assumption that electricity demand is highly inelastic.

While research generally confirms this (i.e., the price elasticity of demand is somewhere between -1 and 0), particularly in the short run due to the high costs associated with switching to other fuels, EKPC is aware of studies that have shown substantial variation and a wide range of uncertainty regarding the price elasticity of demand for electricity across customer classes, over time, and across states.

In 1993, "A Study of Energy Demand Elasticities in Support of the Development of the NEMS," by Carol Dahl of the Colorado School of Mines, identified the range of estimates summarized in the table below:

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**Price Elasticity of Electricity Demand in the U.S.**

| Customer Class | Time Horizon | Range of Estimates | |
|---|---|---|---|
| Residential | Short Run | -0.80 | -0.00 |
| Residential | Long Run | -2.50 | -0.00 |
| Commercial | Short Run | -1.18 | -0.17 |
| Commercial | Long Run | -4.74 | -0.00 |

In the Energy Information Administration report "Price Responsiveness in the AEO2003 NEMS Residential and Commercial Buildings Sector Models," Steven H. Wade found that demand is slightly less price elastic in the commercial sector than it is in the residential sector and that demand is substantially more elastic over longer time horizons:

**Price Elasticity of Electricity Demand in the U.S. by Time Horizon**

| Customer Class | 1-Year | 2-Year | 3-Year | Long Run |
|---|---|---|---|---|
| Residential | -0.20 | -0.29 | -0.34 | -0.49 |
| Commercial | -0.10 | -0.17 | -0.20 | -0.45 |

In the 2005 RAND Corporation report "Regional Differences in the Price-Elasticity of Demand for Energy," Mark A. Bernstein and James Griffin found that demand in this area is more price elastic in the commercial sector over the long run than it is in the residential sector over the short run:

**Price Elasticity of Electricity Demand in the East South Central U.S. Census Division**

| Customer Class | Time Horizon | Coefficient | 95% Confidence Interval | |
|---|---|---|---|---|
| Residential | Short Run | -0.266 | -0.405 | -0.126 |
| Residential | Long Run | -0.618 | -0.900 | -0.336 |
| Commercial | Short Run | -0.271 | -0.507 | -0.035 |
| Commercial | Long Run | -0.995 | -2.024 | 0.033 |

Note: This division includes Kentucky, Tennessee, Alabama, and Mississippi.

EKPC plans to address the uncertainty regarding the price elasticity of demand by developing a sensitivity analysis in its next Load Forecast in 2014.

If you have any further questions, please do not hesitate to contact me.

Very Truly Yours,

Patrick C. Woods
Director, Regulatory and Compliance Services